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MEDIA & INVESTOR RELEASE

Novartis Kymriah® pivotal trial demonstrates strong response rates and a remarkable safety profile in relapsed or refractory follicular lymphoma

- *Primary analysis of ELARA trial demonstrated a 66% complete response rate and 86% overall response rate with one-time Kymriah infusion*[1]
- *Robust response observed in heavily pretreated patients in critical need of a potentially definitive treatment option*[1,2]
- *No patients in ELARA trial experienced grade 3/4 cytokine release syndrome, the most common side effect associated with CAR-T therapy*[1]
- *Global regulatory submissions based on the ELARA trial on track for later this year*

Basel, June 2, 2021 — Novartis today announced robust data from the primary analysis of the pivotal Phase II ELARA trial of Kymriah® (tisagenlecleucel) in patients with relapsed or refractory (r/r) follicular lymphoma (FL)[1]. Data will be presented as an oral presentation during the 2021 Annual American Society of Clinical Oncology (ASCO) Virtual Scientific Meeting (Abstract #7508; oral presentation: Monday, June 7, 10:30 AM CDT).

“Patients with follicular lymphoma who do not respond to their current treatment or who relapse early after treatment often have to endure multiple treatments, which can result in diminished clinical outcomes with each successive therapy,” said Stephen J. Schuster, MD, the Robert and Margarita Louis-Dreyfus Professor in Chronic Lymphocytic Leukemia and Lymphoma Clinical Care and Research in Penn’s Perelman School of Medicine and director of the Lymphoma Program at the Abramson Cancer Center. Schuster will present the results at ASCO. “Our goal as researchers is to continue to explore the potential of CAR-T therapy, and the robust ELARA safety and efficacy findings suggest Kymriah may play an important role in the third-line treatment of relapsed or refractory follicular lymphoma.”

In the primary ELARA analysis, 97 patients were infused and evaluated for safety, 94 patients were evaluable for efficacy with a median follow-up of 11 months. Importantly, no patients experienced grade 3/4 cytokine release syndrome (CRS), the most common side effect associated with CAR-T therapy. Grade 1 or 2 CRS, as defined by the Lee Scale, occurred in 49% of patients. Grade 1 or 2 neurological events (NEs) (per CTCAE v4.03) occurred in 9% of patients and one patient experienced grade 4 NEs and recovered. Sixty-five percent of patients experienced grade ≥3 adverse events within 8 weeks post-infusion, most commonly neutropenia (28%) and anemia (13%). Three patients died from progressive disease and no deaths were treatment related. Kymriah was administered in the outpatient setting for 18% of patients in the ELARA trial[1,3].

Kymriah led to responses for the majority of patients treated, with 66% achieving a complete response (CR) (95% CI, 56-75). The overall response rate was 86% (95% CI, 78-92). Response rates were consistent across high-risk patient subgroups. The median duration of response (DOR) in all responders (95% CI, NE-NE), progression free survival (PFS) (95% CI, 12.1-NE), and overall survival (OS) (95% CI, NE-NE) were not reached. Estimated DOR in patients with CR and PFS rates at six months were 94% (95% CI, 82-98) and 76% (95% CI, 65-84), respectively. Efficacy findings include data from nearly twice as many patients as were reported at the interim analysis, including high-risk and heavily pretreated patients who continued to relapse or have refractory disease despite exposure to numerous prior lines of therapy. The median number of prior therapies was 4 (range, 2-13), 78% of patients were refractory to their last treatment (76% to ≥2 prior regimens) and 60% progressed within 2 years of initial anti-CD20-containing treatment[1,3].

“The strength of these pivotal results from the ELARA trial underscore the promising potential of Kymriah in the treatment of patients with relapsed or refractory follicular lymphoma,” said Stefan Hendriks, Global Head Cell & Gene, Novartis Oncology. “With deep experience in CAR-T cell therapy and the largest global manufacturing footprint, Novartis is boldly committed to bringing the benefits of Kymriah to more patients with advanced blood cancers, and we look forward to advancing global regulatory submissions in this indication as quickly as possible.”

Editor's note: The University of Pennsylvania (Penn) has licensed certain study-related technologies to Novartis. Penn and the inventors of these technologies receive significant financial benefits as a result of this licensing relationship with Novartis.

Visit https://www.hcp.novartis.com/virtual-congress/a-2021/ for the latest information from Novartis, including our commitment to the Oncology community, and access to our ASCO21 Virtual Scientific Program data presentations (for registered participants).

About Follicular Lymphoma
Follicular lymphoma (FL), the second most common form of non-Hodgkin lymphoma (NHL), is an indolent lymphoma, and represents approximately 22% of NHL cases[2,4]. Despite new treatments that improve overall survival, FL is regarded as an incurable malignancy with a relapsing and remitting pattern[5,6]. Throughout the lifetime of a patient with relapsing FL, they may be exposed to a median of five lines of prior treatment, with an upper range of 12 lines[7,8]. Although patients in third or later line treatment for FL have multiple systemic therapies available, the efficacy of these regimens drops off rapidly in later lines[2]. Additionally, because of this relapsing and remitting pattern, patients who are refractory to treatment or quickly relapse may exhaust available treatment options[6].

About the ELARA trial
ELARA is a Phase II, single-arm, multicenter, open-label trial investigating the efficacy and safety of Kymriah in adult patients with r/r FL. This international trial has enrolled patients from over 30 sites in 12 countries worldwide. The primary endpoint is CRR based on best response by central review (Lugano 2014 criteria). Patients evaluable for efficacy had measurable disease at infusion and more than six months of follow-up from infusion or discontinued early. After infusion, disease assessments were performed every three months. Secondary endpoints include overall response rate, duration of response, progression-free survival, overall survival and safety.

In Q2 2020, the FDA granted Regenerative Medicine Advanced Therapy (RMAT) designation to Kymriah in r/r FL, based on preliminary results from the ELARA trial. RMAT designation is intended to expedite the development and review of Kymriah as a regenerative therapy for this underserved patient population. Kymriah also has Orphan Drug designation from the FDA for this disease.

About Kymriah
Kymriah is the first-ever FDA-approved CAR-T cell therapy, and the first-ever CAR-T to be approved in two distinct indications. It is a one-time treatment designed to empower patients' immune systems to fight their cancer. Kymriah is currently approved for the treatment of r/r pediatric and young adult (up to and including 25 years of age) acute lymphoblastic leukemia (ALL), and r/r adult diffuse large B-cell lymphoma (DLBCL)[9].

About Novartis Commitment to Oncology Cell & Gene
Novartis has a mission to reimagine medicine by bringing curative cell & gene therapies to patients worldwide. Novartis has a deep CAR-T pipeline and ongoing investment in manufacturing and supply chain process improvements. With active research underway to broaden the impact of cell and gene therapy in oncology, Novartis is going deeper in hematological malignancies, reaching patients with other cancer types and evaluating next-generation CAR-T cell therapies that focus on new targets and utilize new technologies.

Novartis was the first pharmaceutical company to significantly invest in pioneering CAR-T research and initiate global CAR-T trials. Kymriah, the first approved CAR-T cell therapy, developed in collaboration with the Perelman School of Medicine at the University of Pennsylvania, is the foundation of Novartis' commitment to CAR-T cell therapy. Kymriah is currently approved for use in at least one indication in 28 countries and at more than 300 certified treatment centers, with the ambition for further expansion to help fulfill the ultimate goal of bringing CAR-T cell therapy to every patient in need.

The Novartis global CAR-T manufacturing footprint spans seven facilities, across four continents, and includes both Novartis-owned and contract manufacturing sites. This comprehensive, integrated footprint strengthens the flexibility, resilience and sustainability of the Novartis manufacturing and supply chain.

Kymriah® (tisagenlecleucel) US Important Safety Information
Kymriah may cause side effects that are severe or life-threatening, such as Cytokine Release Syndrome (CRS) or Neurological Toxicities. Patients with CRS may experience symptoms including difficulty breathing, fever (100.4°F/38°C or higher), chills/shaking chills, severe nausea, vomiting and diarrhea, severe muscle or joint pain, very low blood pressure, or dizziness/lightheadedness. Patients may be admitted to the hospital for CRS and treated with other medications.

Patients with neurological toxicities may experience symptoms such as altered or decreased consciousness, headaches, delirium, confusion, agitation, anxiety, seizures, difficulty speaking and understanding, or loss of balance. Patients should be advised to call their healthcare provider or get emergency help right away if they experience any of these signs and symptoms of CRS or neurological toxicities.

Because of the risk of CRS and neurological toxicities, Kymriah is only available through a restricted program under a Risk Evaluation and Mitigation Strategy (REMS) called Kymriah REMS.

Serious allergic reactions, including anaphylaxis, may occur after Kymriah infusion. Kymriah can increase the risk of life-threatening infections that may lead to death. Patients should be advised to tell their healthcare provider right away if they develop fever, chills, or any signs or symptoms of an infection.

Patients may experience prolonged low blood cell counts (cytopenia), where one or more types of blood cells (red blood cells, white blood cells, or platelets) are decreased. The patient's healthcare provider will do blood tests to check all of their blood cell counts after treatment with Kymriah. Patients should be advised to tell their healthcare provider right away if they get a fever, are feeling tired, or have bruising or bleeding.

Patients may experience hypogammaglobulinemia, a condition in which the level of immunoglobulins (antibodies) in the blood is low and the risk of infection is increased. It is expected that patients may develop hypogammaglobulinemia with Kymriah and may need to receive immunoglobulin replacement for an indefinite amount of time following treatment with Kymriah. Patients should tell their healthcare provider about their treatment with Kymriah before receiving a live virus vaccine.

After treatment with Kymriah, patients will be monitored lifelong by their healthcare provider, as they may develop secondary cancers or recurrence of their cancer.

Patients should not drive, operate heavy machinery, or do other dangerous activities for eight weeks after receiving Kymriah because the treatment can cause temporary memory and coordination problems, including sleepiness, confusion, weakness, dizziness, and seizures.

Some of the most common side effects of Kymriah are difficulty breathing, fever (100.4°F/38°C or higher), chills/shaking chills, confusion, severe nausea, vomiting and diarrhea, severe muscle or joint pain, very low blood pressure, dizziness/lightheadedness, and headache. However, these are not all of the possible side effects of Kymriah. Patients should talk to their healthcare provider for medical advice about side effects.

Prior to a female patient starting treatment with Kymriah, their healthcare provider may do a pregnancy test. There is no information available for Kymriah use in pregnant or breast-feeding women. Therefore, Kymriah is not recommended for women who are pregnant or breast feeding. Patients should talk to their healthcare provider about birth control and pregnancy.

Patients should tell their healthcare provider about all the medicines they take, including prescription and over-the-counter medicines, vitamins, and herbal supplements.

After receiving Kymriah, patients should be advised that some commercial HIV tests may cause a false-positive test result. Patients should also be advised not to donate blood, organs, or tissues and cells for transplantation after receiving Kymriah.

Please see the full Prescribing Information for Kymriah, including Boxed WARNING, and Medication Guide at www.Kymriah.com

Disclaimer

This press release contains forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995. Forward-looking statements can generally be identified by words such as “potential,” “can,” “will,” “plan,” “may,” “could,” “would,” “expect,” “anticipate,” “seek,” “look forward,” “believe,” “committed,” “investigational,” “pipeline,” “launch,” or similar terms, or by express or implied discussions regarding potential marketing approvals, new indications or labeling for the investigational or approved products described in this press release, or regarding potential future revenues from such products. You should not place undue reliance on these statements. Such forward-looking statements are based on our current beliefs and expectations regarding future events, and are subject to significant known and unknown risks and uncertainties. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those set forth in the forward-looking statements. There can be no guarantee that the investigational or approved products described in this press release will be submitted or approved for sale or for any additional indications or labeling in any market, or at any particular time. Nor can there be any guarantee that such products will be commercially successful in the future. In particular, our expectations regarding such products could be affected by, among other things, the uncertainties inherent in research and development, including clinical trial results and additional analysis of existing clinical data; regulatory actions or delays or government regulation generally; global trends toward health care cost containment, including government, payor and general public pricing and reimbursement

pressures and requirements for increased pricing transparency; our ability to obtain or maintain proprietary intellectual property protection; the particular prescribing preferences of physicians and patients; general political, economic and business conditions, including the effects of and efforts to mitigate pandemic diseases such as COVID-19; safety, quality, data integrity or manufacturing issues; potential or actual data security and data privacy breaches, or disruptions of our information technology systems, and other risks and factors referred to in Novartis AG's current Form 20-F on file with the US Securities and Exchange Commission. Novartis is providing the information in this press release as of this date and does not undertake any obligation to update any forward-looking statements contained in this press release as a result of new information, future events or otherwise.

About Novartis
Novartis is reimagining medicine to improve and extend people's lives. As a leading global medicines company, we use innovative science and digital technologies to create transformative treatments in areas of great medical need. In our quest to find new medicines, we consistently rank among the world's top companies investing in research and development. Novartis products reach nearly 800 million people globally and we are finding innovative ways to expand access to our latest treatments. About 110,000 people of more than 140 nationalities work at Novartis around the world. Find out more at https://www.novartis.com.

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